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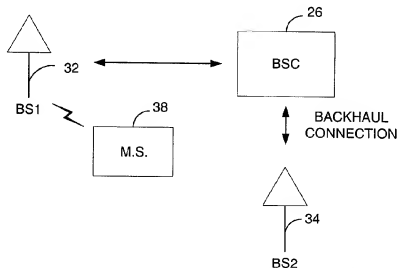
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(54) Title: METHOD AND APPARATUS FOR CALL RECOVERY IN A WIRELESS COMMUNICATION SYSTEM



(57) Abstract: A method and apparatus for call recovery in a wireless communication system (10). When the communication link between a mobile station (38) and a base station (32) is in trouble, the mobile station and the infrastructure prearrange potential rescue base stations (34). The source cell base station contacts all recovery-capable neighbors as potential rescuers. Each rescue base station is instructed to use a default channel for rescue transmissions. The rescue transmission is considered a call recovery operation. The mobile station establishes a soft hand-off with rescue base station, wherein the M.S. uses the default channel and an alternate channel. Once hand-off is complete the rescue base station discontinues use of the default channel. In one embodiment, the source cell base station provides the mobile station with the list of recovery-capable neighbors as overhead during transmissions and prior to development of the communication link problem.



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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

 International App. No.  
 PCT/US 01/44566

 A. CLASSIFICATION OF SUBJECT MATTER  
 IPC 7 H04Q7/38 H04Q7/32

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04Q H04B

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 267 261 A (TIEDEMANN JR EDWARD G ET AL) 30 November 1993 (1993-11-30) column 3, line 11 -column 4, line 43 ---	1,2,4-9
X	EP 0 624 994 A (NIPPON TELEGRAPH & TELEPHONE) 17 November 1994 (1994-11-17) column 6, line 44 -column 7, line 19 column 7, line 42 -column 8, line 44 ---	1,2
X	US 5 574 996 A (RAITH ALEX K) 12 November 1996 (1996-11-12) column 2, line 22 - line 37 column 6, line 9 - line 21 ---	13
X	US 5 101 501 A (GILHOUSEN KLEIN S ET AL) 31 March 1992 (1992-03-31) column 11, line 7 - line 22 --- -/-	14

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

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\*Z\* document member of the same patent family

Date of the actual completion of the international search

30 October 2002

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## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 98 05175 A (ERICSSON TELEFON AB L M) 5 February 1998 (1998-02-05) page 7, line 34 -page 9, line 10 -----	18

# INTERNATIONAL SEARCH REPORT

International Application No.  
PCT/US 01/44566

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☒ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:  
1-9, 13-20
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

**FURTHER INFORMATION CONTINUED FROM PCT/SA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-9

Method of triggering call recovery

2. Claims: 10-12

Method of determining the default channels for call recovery

3. Claim : 13

Wireless apparatus optimising power transmission

4. Claims: 14-17

Wireless apparatus adjusting power level when recovering a call

5. Claims: 18-20

Computer program avoiding interference between special events and the call recovery procedure

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International App No  
PCT/US 01/44566

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5267261	A	30-11-1993	US 5640414 A 17-06-1997
EP 0624994	A	17-11-1994	JP 3080204 B2 21-08-2000
			JP 6326652 A 25-11-1994
			JP 3080205 B2 21-08-2000
			JP 6326653 A 25-11-1994
			DE 69423810 D1 11-05-2000
			DE 69423810 T2 12-10-2000
			EP 0624994 A1 17-11-1994
			US 5487083 A 23-01-1996
US 5574996	A	12-11-1996	US 5539748 A 23-07-1996
			US 5603081 A 11-02-1997
			US 5883885 A 16-03-1999
			AU 681721 B2 04-09-1997
			AU 8131494 A 23-05-1995
			BR 9405705 A 28-11-1995
			CA 2152943 A1 11-05-1995
			CN 1117330 A ,B 21-02-1996
			EP 0679304 A1 02-11-1995
			FI 953268 A 30-06-1995
			JP 8508629 T 10-09-1996
			NZ 276006 A 24-11-1997
			SG 43316 A1 17-10-1997
			WO 9512932 A1 11-05-1995
			US 6331971 B1 18-12-2001
			AU 681730 B2 04-09-1997
			AU 1048095 A 23-05-1995
			AU 680071 B2 17-07-1997
			AU 1048395 A 23-05-1995
			AU 691850 B2 28-05-1998
			AU 1087495 A 23-05-1995
			AU 685885 B2 29-01-1998
			AU 1087695 A 23-05-1995
			AU 695892 B2 27-08-1998
			AU 2079997 A 24-07-1997
			AU 720332 B2 25-05-2000
			AU 2358897 A 14-08-1997
			AU 690924 B2 07-05-1998
			AU 7757094 A 18-05-1995
			AU 7865898 A 15-10-1998
			AU 7865998 A 01-10-1998
			AU 697210 B2 01-10-1998
			AU 8131394 A 23-05-1995
			BR 9404316 A 04-07-1995
			BR 9405702 A 28-11-1995
			BR 9405703 A 28-11-1995
			BR 9405704 A 28-11-1995
			BR 9405743 A 05-12-1995
			BR 9405927 A 05-12-1995
			CA 2134695 A1 02-05-1995
			CA 2152942 A1 11-05-1995
			CA 2152944 A1 11-05-1995
			CA 2152945 A1 11-05-1995
			CA 2152946 A1 11-05-1995
			CA 2152947 A1 11-05-1995
			CA 2303751 A1 02-05-1995
			CA 2309314 A1 11-05-1995

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Ap in No  
PCT/US 01/44566

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 5574996	A		CA	2309333 A1	11-05-1995
			CA	2309374 A1	11-05-1995
			CA	2343587 A1	11-05-1995
-----					
US 5101501	A	31-03-1992	AT	188073 T	15-01-2000
			AU	646421 B2	24-02-1994
			AU	6904191 A	31-05-1991
			BR	9007828 A	25-08-1992
			CA	2073027 A1	08-05-1991
			CN	1051832 A	29-05-1991
			DE	69033402 D1	27-01-2000
			DE	69033402 T2	23-08-2001
			DK	500775 T3	13-06-2000
			EP	0500775 A1	02-09-1992
			ES	2142800 T3	01-05-2000
			FI	922081 A	07-05-1992
			GR	3032996 T3	31-07-2000
			HK	1014810 A1	12-01-2001
			IL	96219 A	12-04-1994
			JP	3014753 B2	28-02-2000
			KR	157636 B1	16-11-1998
			MX	173031 B	28-01-1994
			NO	921793 A	06-07-1992
			SG	48290 A1	17-04-1998
			WO	9107020 A1	16-05-1991
			ZA	9008857 A	28-08-1991
-----					
WO 9805175	A	05-02-1998	AU	724174 B2	14-09-2000
			AU	3713197 A	20-02-1998
			CN	1228231 A	08-09-1999
			DE	19781897 T0	23-09-1999
			GB	2331673 A , B	26-05-1999
			WO	9805175 A2	05-02-1998
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